STUDY PROJECT

THE MOTORIZATION OF THE AUSTRALIAN ARMY

BY

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27 MARCH 1989

U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO.

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
The Motorization of the Australian Army

5. TYPE OF REPORT & PERIOD COVERED

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
LTC Gregory C. Camp

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS
U.S. Army War College
Carlisle Barracks, PA 17013

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS

12. REPORT DATE
27 March 1989

13. NUMBER OF PAGES
28

14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)

15. SECURITY CLASS. (of this report)
Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution is unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Motorization, Australian Army

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
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USAWC MILITARY STUDIES PROGRAM PAPER

THE MOTORIZATION OF THE AUSTRALIAN ARMY

AN INDIVIDUAL STUDY PROJECT INTENDED FOR PUBLICATION

by

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ABSTRACT

AUTHOR: Gregory C. Camp, LTC, IN

TITLE: The Motorization of the Australian Army

FORMAT: Individual Study Project Intended for Publication

DATE: 27 March 1989 PAGES: 28 CLASSIFICATION: Unclassified

The 1987 Australian Defense White Paper made sweeping changes in the priorities of that country's defense forces, their orientation, and their equipment requirements. The Army has, for the first time, been directed to provide rapidly deployable ground forces that can operate over vast distances with little support. The principal area of concern is the northern and northwestern portions of Australia. The most likely contingencies ranging from low level to substantial threats would be seen coming through the air-sea gap to the northwest of Australia. This paper proposes a ground force which can meet and defeat the threat; which is affordable; and which provides flexibility. This force is referred to as motorized. The paper explores the capabilities, limitations, and appropriateness of this force for the unique strategic requirements spelled out in the White Paper.

INTRODUCTION

In March 1987, the Australian government published a comprehensive defense policy review entitled, The Defence of Australia. The paper sets forth the strategic direction of the Australian Defence Force (ADF) and serves as the basis for defense planning in future years.[1] In addressing the future requirements for the Australian Army, the paper states, "We must have mobile land forces to meet and defeat armed incursions at remote locations."[2] Later in the paper, the Army's requirements are explained to include, "protection of military and infrastructure assets that support the projection of our maritime power."[3] The purpose of this paper is to propose a force which can meet these requirements, which is affordable, and which offers flexibility to defense planners. For the purposes of the paper, I will call this force "motorized." In developing arguments, I will use the specific equipment and some concepts now found in the U.S. Army's 9th Infantry Division (Motorized). I do this because I am personally familiar with that equipment and their concept. I hastened to add that it is the motorized concept that I am offering for consideration. The specific equipment could take many forms, so long as it does not significantly alter the basic concept. In fact, one of the attractive features of this proposal is that the equipment can be easily produced in Australia.

I will develop the motorized concept for Australia by addressing its applicability in three major areas. First, there is no reason to develop a defense force unless it can meet and defeat the threat. Based on the threat, I will demonstrate that the motorized force meets the White Paper's requirements for ground forces in defense of Australia. Furthermore, it does

so with great flexibility; and, of major import in Australia, it is affordable. In fact, it is cheap compared to any alternative that approaches its capabilities. Lastly, it provides defense planners with a number of flexible options to address numerous difficult issues brought about by the new northern focus of the White Paper.

THE MOTORIZED CONCEPT

Before going on, I think an explanation of this motorized concept is needed. I do not intend to develop a detailed force structure. Instead, I will rely on the basic motorized concept and illustrate that concept with some specifics. The motorized concept is built around a family of vehicles. The specific family I am using is the High Mobility Multipurpose Wheeled Vehicle (HMMWV). This family has extremely good cross-country mobility, is light weight, and can be air transported under a UH-60 helicopter (Photo 1). Further, three fully loaded vehicles can be transported in the cargo bay of the C-130 aircraft. It is highly mobile and can attain speeds in excess of 100 KPH on primary roads.[4] The infantry squad version of this vehicle can transport an infantry squad of eight men and their basic load of equipment, rations, and ammunition. Within the company group, all vehicles are from the family (Photos 2-4). The company group can move in excess of 550 kilometers without refueling. Mini-fuelers (Photo 5), attached to the company group, can extend that range significantly. Combat support vehicles at battalion level are also from the same family (Photos 6-8). The weapons capable of being mounted include the TOW 2A, MK19 (a 40mm grenade machine gun with rate of fire of 250-350 rds/min), the 50 caliber MG, the 20mm MG, M60 machine gun, and the Squad Automatic Weapon (SAW). The on-board storage capacity enables the crew

to sustain itself while operating over vast distances, away from higher level support. The platoon sergeant has the role of a fighting logistician and his vehicle allows significant organic resupply capability at platoon level (Photo 9). The battalion's headquarters company consists of a combination of HMMWVs, most located at the command posts and forward trains (Photos 10-12), and heavier support vehicles at the rear/field trains area. All levels of support and sustainment are available to the company group from the HMMWV family of vehicles. Replenishment of these vehicles and rear support is provided by the heavier vehicles from the rear/field trains.[5]

THE PROPOSAL

What I am proposing is that two of the three regular brigades become motorized. This would, of course, include their full brigade group (engineers, artillery, signal, surveillance, etc.) becoming motorized. For reasons which will be developed later, I propose to keep a brigade group configured as the Operational Deployment Force (ODF). That brigade should include the airborne battalion group as well as one of the current battalions organized under light scales. Selected reserve units may also become motorized. For example, surveillance units assigned to NORFORCE may benefit by using this concept. However, most of the reserves will remain under light scales.

FORCE STRUCTURE CAPABILITY TO MEET THE THREAT

For any proposed force structure to be credible, it must be able to defeat the threat. More specifically, every country accepts risks in this regard, since assured defense is not economical. The key is to reduce this

risk to an acceptable level. In Australia's case, this becomes very difficult to judge. The lack of any clear threat is a national blessing and should remain the goal of political leadership for the future. However, the lack of a threat creates enormous problems for defense planners. It does not enable planners to then configure their forces to counter such a threat. It requires the defense forces to have a more expensive and expansive capability that can counter any number of potential threats. It is this uncertainty that has caused the defense planners to describe the threat in rather vague terms. At the same time, the range of capabilities required of the ADF and, specifically, the Army, are specified based on providing reasonable assurance of success against any of the possible scenarios.

The Dibb report provides the basis for addressing the threat. It refers to the most likely threat to Australia in three broad categories: low level, escalated low level, and more substantial conflict. The problems in designing a force to meet these threats is at the center of the controversy over the future of the Army. On the low end of the conflict spectrum, the Army might expect small raids (less than company size) on isolated northern communities. This might be designed to sabotage defense or civil infrastructure, or off-shore resource bases. At the high end of the spectrum, the Army might have to contend with an attempted lodgement on Australian territory while simultaneously responding to a number of the previously mentioned raids.[6]

In addition to looking at the objectives of a potential enemy, one must consider the terrain and weather. Once again, this causes great concern for force structure planners. The most likely potential targets of an enemy are dispersed over vast distances in the north of Australia. While terrain and

weather are militarily considered neutral, by taking them into account, one can build a plan that maximizes their potential benefit. Conversely, without due consideration, they add to the formidable task of the Army.

It is with all these factors considered that the White Paper states:

> Government policy is that, . . . the Army's structure must include highly mobile forces capable of rapid deployment anywhere within Australia and its territories to conduct protracted and dispersed operations.[7]

Later, in that same document, the required force is spelled out in more detail, as follows:

> We need a force structure that includes a light air portable force, capable of rapid deployment; forces capable of following up an initial deployment with greater combat power to reinforce deployed formations if necessary.[8]

Before making the case for motorized, I think a preliminary discussion on mobility is necessary. In his policy statement, The Army in the 1980's, the then Chief of the General Staff of the Australian Army, LTG Sir Phillip Bennett, spoke of the need for "strategic, tactical, and battlefield mobility."[9] These three types of mobility are all important, but usually inversely proportioned to one another. For example, light scaled infantry is highly strategically deployable. That is, they can get from Townsville to the appropriate location by air very rapidly. However, by themselves they lack tactical or battlefield mobility. If augmented with utility helicopters, they can move from their strategic debarkation location to dispersed locations rapidly to counter the enemy threat. However, once engaged with the enemy, they lack the capability to maneuver rapidly without first breaking contact to conduct additional airmobile operations. Conversely, a heavy force from 1st Brigade has the capability to maneuver, once engaged by the enemy, very rapidly. Within reasonable distances such a force can deploy from strategic

debarkation locations to hostile areas rapidly. However, the strategic deployability of these forces is far more difficult and considerably slower than a light scaled formation.

Enter now the motorized concept as described above. In terms of strategic deployability, it offers two options. First, it can be loaded on the existing RAAF force of 6 Boeing 707's and 24 C-130 E/H transport aircraft and sent to the strategic debarkation location rapidly. Granted, it does take more aircraft and more time than an ODF type formation; but, depending on the actual threat, this may be the force of choice and the capability for rapid deployment by air of portions of the motorized force is clearly within current ADF capability.[10] Secondly, the motorized unit can rapidly load its basic combat allowance at its home station--even Holsworthy--and literally drive to the hostile location. The actual drive may take five to six days in remote locations of Northwestern Australia. However, this is in keeping with stated policy that:

> force structure includes light air portable forces [read the ODF], and force capable of following up with greater combat power [read motorized].[11]

When considering the other two types of mobility, the proposed motorized formation also offers some unique capabilities. Chief of the Australian Defense Force, General Gration, recently commented on the mobility of the Army's 2d Cavalry Regiment which will be moving to Darwin by 1992. He said,

> We will be giving it wheeled vehicles which are better than tracks for the great distances it has to cover.[12]

As compared to a heavy (mechanized) force, motorized forces can move from one dispersed hostile area to another more rapidly and more reliably. Once engaged, both forces have the capability to maneuver rapidly on the battlefield and both possess far superior fire power compared to a light

scaled unit. As compared to a light scale unit, even one augmented with utility helicopters, the motorized concept is able to deploy rapidly from one hostile area to another; and, once there, to bring superior firepower and maneuver to bear on the enemy.

In certain scenarios, both driven by enemy and weather, the motorized force as described above may not be suitable. It is for this reason that I have proposed to maintain the ODF in the force structure, as a truly rapid reaction force. If reinforcements are required and conditions do not permit the motorized force as configured to respond, these forces can be used in a dismounted, or light scale, version. The infantry skills of the motorized soldier are the same as his ODF counterpart, except, of course, the airborne capability. Granted, there may be some additional emphasis in the ODF on certain skills and training time may be greater there as well. However, as compared to an M113A1 armored personnel carrier (APC), which is currently in the Army's inventory, the maintenance requirements for a HMMWV family of vehicles is significantly reduced. This allows more time to devote to basic infantry skills than would be the case in a mechanized formation.

One of the most widely debated and contentious issues surrounding the Dibb Report and the White Paper has been the issue of mechanization. Under the previous "core force" concept, a mechanized formation was required to maintain the expansion base skills. The Dibb Report deemphasized this concept,[13] although the White paper did say,

> Maintenance of a range of capabilities in the ADF applicable to higher levels of conflict . . . has been endorsed by successive governments as appropriate.[14]

The most perishable and most important expansion base capability is the ability to conduct combined arms maneuver operations at speeds commensurate with mechanized forces. There is a difficult transition between commanding and controlling dismounted forces, even airmobile ones, and mechanized forces. The interrelationship between the combined arms is more difficult as a result of the speed and distances required by a mechanized force. Appropriately, these skills must be maintained in the Army. Under the motorized concept, these skills would be expanded to two full brigades. This is possible, because it is the very application of this speed over distance that makes the motorized concept so valuable for the more likely contingencies. True, large scale combined arms operations are not the immediate focus of the Army to counter the more credible threat. However, even at platoon and company level, the incorporation of combined arms assets at high speed over vast distances is an imperative to counter the most credible threats. The ongoing Kangaroo exercises (held biennally in Western Australia with U.S. forces) are sufficient to employ and train higher level formations in combined arms operations.

Another important factor in favor of the motorized concept is the ability to tailor the force to meet the threat, since the motorized force has great organic capability to carry its own supplies. It also has a wide range of configurations and the capability to use different weapons from the same platform (50 cal, M-60, MK19). As a result of these factors, the motorized force can be easily tailored to meet the potential threat or geographic area. For example, the MK19 is an impressive area coverage, anti-infantry weapon. It is ideally suited against an infantry threat in open country. Conversely,

it is not good in close country, urban areas, or against medium to heavy armor. Similar arguments can be made for the other weapon systems capable of being employed on the same HMMWV platform.

Any discussion of this motorized concept would be shallow if it did not include the most glaring shortcoming of the concept--its lack of armor protection. It is, in fact, this shortcoming that has created many of the advantages (strategic deployability, tactical deployability, and flexibility) discussed previously. It is also going to be the key factor in the affordability discussion to follow. Nevertheless, the issue of poor armor protection needs to be addressed in terms of the soldier who depends upon it. It is of little comfort to him that his unit was devastated by artillery because his "thin-skinned" vehicle had greater strategic deployability.

To address the issue of armor protection, we must consider the threat. Once again, the vagueness of a credible threat to Australia complicates matters. However, the Dibb Report suggests that "artillery will not find concentrated targets in the conventional sense."[15] Of course, this refers to enemy targets, not friendly targets. However, it is precisely the concentration of enemy artillery that poses the greatest threat to the motorized force. The fact that Dibb does not envision such a concentration is a large factor in determining the acceptable risk one assumes when equipping one's force with motorized vehicles as described here. Beyond wishing away the threat, tactics and techniques go a long way towards reducing vulnerability. Certainly distance, speed, rapid concentration, and equally rapid dispersion reduce the target of opportunity for the enemy. Another useful technique is to conduct operations at night, "using night vision goggles (NVGs) and sensors to enhance your capability."[16] Naturally, one

can not always dictate the time of operations, particularly in a defensive scenario. Nevertheless, the capability to operate at night reduces vulnerability greatly, while simultaneously enhancing the offensive portion of the "defensive strategy."

At this point, I should also make a strong case to keep the armored regiment at full strength. With the conversion to a motorized force, the armored regiment represents the only real armor protected capability. In conjunction with motorized or dismounted infantry, the tank has proven its value in the widest possible range of conflicts. Certainly, the Japanese used them to good effect in Malaya in 1942. Later, the Australians used them as well in a jungle environment. This digression is not so much to say they are needed in the rain forests of Northern Australia, but to say that they have great value across the spectrum of conflict. Their importance on the low end of the conflict spectrum is enhanced by their now unique capability to provide armor protection. Further, it is precisely these tanks operating with motorized formations that maintains the critical skills of maneuver warfare previously discussed.

Before leaving the issue of armor protection, a final point needs to be made. That is, to what are we comparing the protection of motorized forces? Obviously, it is inferior to mechanized forces. However, currently only one battalion is mechanized. Even with the additional capability provided by the APC regiment, it is clear that in many scenarios non-ODF Australian forces would be employed under the light scales concept. Compared to them, the motorized force offers protection in the form of dispersion and speed that dismounted diggers do not at the moment enjoy.

AFFORDABILITY

After determining that a force structure is capable of defeating the threat, within acceptable risk, the next logical issue concerns affordability. When considering affordability, a number of factors are important. First, of course, is the initial capital cost outlay. How much does it cost to buy the force structure? Second, how much does it cost to operate the force structure and maintain it? A third set of factors might be called second order effects. For example, will the majority of the first two costs be spent in Australia or purchased abroad? Will the force structure proposals spawn any additional capital and operating costs (motor parks, infrastructure, etc.)?

To address the first issue of capital cost, a small digression is in order. When the motorized concept was developed in the United States, it was envisioned as a formation built around an assault gun and fast attack vehicle. While domestic and internal military debate continued, it was decided to equip the motorized force with inexpensive HMMWV's as an interim solution. The designers of the U.S. motorized concept, like those of the Australian "Project Waler APC," fell prey to a desire to incorporate more and more into the equipment.[17] Consequently, it was priced out of the competition and we backed into the inexpensive, but highly capable, HMMWV motorized force. As a basis of comparison, the M113A1 costs $216,000 (U.S.) a copy.[18] The basic HMMWV costs $21,000 (U.S.) a copy.[19] Hence, at the same or lower cost of the 700 APC's in the current Australian inventory, Australia could purchase or produce over 7,000 HMMWV's, far more than needed to fulfill the requirements of this paper's proposed force.

The enormous size and weight of the M113 also contributes to its expensive operating cost versus the HMMWV. In addition to the higher maintenance cost in terms of spare parts and hours of maintenance, the fuel consumption of the two is dramatically different. Current cost estimates called for an operating cost of $3.74 per mile for an M113 versus $.38 per mile for a HMMWV.[20] By utilizing a single family of vehicles, additional savings are possible in spares. This is possible because economical quantities of a relatively few number of spare parts are required to keep the fleet operational. This also reduces infrastructure for storage and forward issue at all levels.

The last issue concerning affordability is what I have called the second order effects. While I am no expert in industrial production capability, the HMMWV is merely a rugged version of a four-wheel drive, all terrain vehicle. The beefed up suspension and enhanced air filter capability enable the HMMWV to achieve better results in dusty, cross-country operations than its civilian counterpart. Yet, it would not appear that there are any technological requirements for such rugged vehicles that could not be met within Australian industry. In fact, the peculiar and specific conditions found in Northern and Northwestern Australia may well lead to a "motorized" family of vehicles more specifically tailored for the harsh expanses in which it would operate. The key here would be to keep it simple and affordable. I will address some additional potential second order effects next in discussing possible alternatives for defense planners to consider.

FLEXIBILITY FOR PLANNERS

To set the stage for this discussion, I would point out that there are perhaps two major changes from an Army perspective that are a consequence of the White Paper. They are the emphasis on rapidly deployable forces to meet and defeat a threat within Australia or its territories, and the consequent emphasis of the Northern and Northwestern part of Australia where the most credible threat would arise. The geography of that part of Australia poses a number of additional factors to be considered by the defense planner, particularly the Army planners. As General Gration has said, "We are shifting the center of gravity of the Defense Force north."[21] This militarily justifiable stance has its negative side as well. Some of those negatives to shifting forces to the north are captured by J. O. Langtry in his working paper "Garrisoning" the Northern Territory: The Army's Role. Among the arguments against garrisoning in the north are:

> o Undesirable disruption of families and family support;
>
> o Dislocation of mutually supporting activities--e.g., training, interaction between 1st Armoured Regiment and the Armoured Centre;
>
> o Lowered morale to be associated with a protracted posting to the north;
>
> o Huge cost of relocation which might be better spent elsewhere in force structure, notably in the area of improving the Army's capacity for rapid deployment anywhere across the north.[22]

The strategic self deployability of the motorized concept offers some flexibility in planning locations for regular units. One option is no change in the current locations of brigades in Sydney, Brisbane, and Townsville. Another is stationing of brigades in Townsville (no change), Darwin, and

Perth. This is consistent with the suggestion by MG (Ret) J. D. Stephenson to form a joint headquarters in Darwin, North Queensland and Western Australia.[23] Obviously, variations of these options are also available. Trade-off costs in capital expenditure of new bases versus feasibility of strategic deployment and deterrence value of the options must be carefully considered.

The relatively low cost of the motorized concept could provide for affordable pre-positioning of equipment in the north and garrisoning of forces in current locations. This concept has already been proposed by Langtry with respect to heavy equipment such as tanks and guns.[24] From an affordability point, the capital expenditure of vehicles is well within the previously discussed 7,000 vehicles that equate to the capital cost of the current APC force. An additional consideration is the added cost of facilities and storage/maintenance cost at their pre-positioned locations. Additional sets of vehicles at home station, while still within the 7,000 vehicles discussed, could possibly be reduced by only using a "core force" of vehicles. Training on the basic infantry skills, like marksmanship, dismounted tactics, military operations in urban terrain (MOUT), and airmobile training could provide alternatives during the period when sister units were using the "core vehicles" for their training.

Considerations must be given to the long term cost of exercising regularly with pre-positioned equipment in the north versus initial savings of perhaps $1 billion in capital expenditure for base facilities of a brigade size force garrisoned in the north. Pre-positioning equipment may or may not prove desirable, but another separate question is pre-positioning supplies. Stores of ammunition, rations, water, and fuel in the north could make the

motorized concept more rapidly deployable on less aircraft and with greater staying power than self deploying motorized formations. The cost and maintenance of these forward supplies must also be considered. All these costs must be weighed against acceptable risk and affordability. The point here is that the motorized concept offers a variety of options for the defense planner. It's no longer an either/or position. These options could help the Australian defense planners while increasing the deterrence value of the ADF by creating more uncertainty and more possibilities in the eyes of a potential enemy.

CONCLUSION

The motorized concept contained in this paper is not the perfect solution to the unique strategic challenges faced by the Australian Army. It is, however, an affordable concept that provides great flexibility. It fulfills the requirement to have "mobile land forces to meet and defeat armed invasion at remote locations . . . and protect military and civilian infrastructure assets."[25] It does so with great flexibility, an important capability considering the wide range and ambiguous nature of the threat. It provides for current capability to meet the more credible contingencies, yet without detracting from that mission, ensures the maintenance of the important maneuver warfare mind set so vital as an expansion base capability. It seems reasonable that this affordable motorized concept will provide new and significant investment opportunities within Australian industry. Lastly, owing to the factors mentioned above, it gives defense planners a range of options not previously available. These options can be the salvation of the Australian Army, in light of two major changes in its orientation--self-

reliant layered defense and a consequent movement of the center of gravity north. At the same time, these options have exactly the opposite effect on any potential enemy, increasing his uncertainty and hence increasing the deterrent value of the Australian Army.

ENDNOTES

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17. Gregory Copley, "A Conscious Creation of the Future, an Interview with Australian Defence Minister Kim Beazley," Defense and Foreign Affairs, August 1988, p: 22.

18. Figures supplied by Lynn Smith, Project Manager Office, M113 Family of Vehicles, Warren, Michigan, 7 March 1989.

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22. J. O. Langtry, Garrisoning the Northern Territory: The Army's Role, Working Paper No. 132, (Canberra: Strategic Defence Studies Centre, The Australian National University, August 1987), p: 10.

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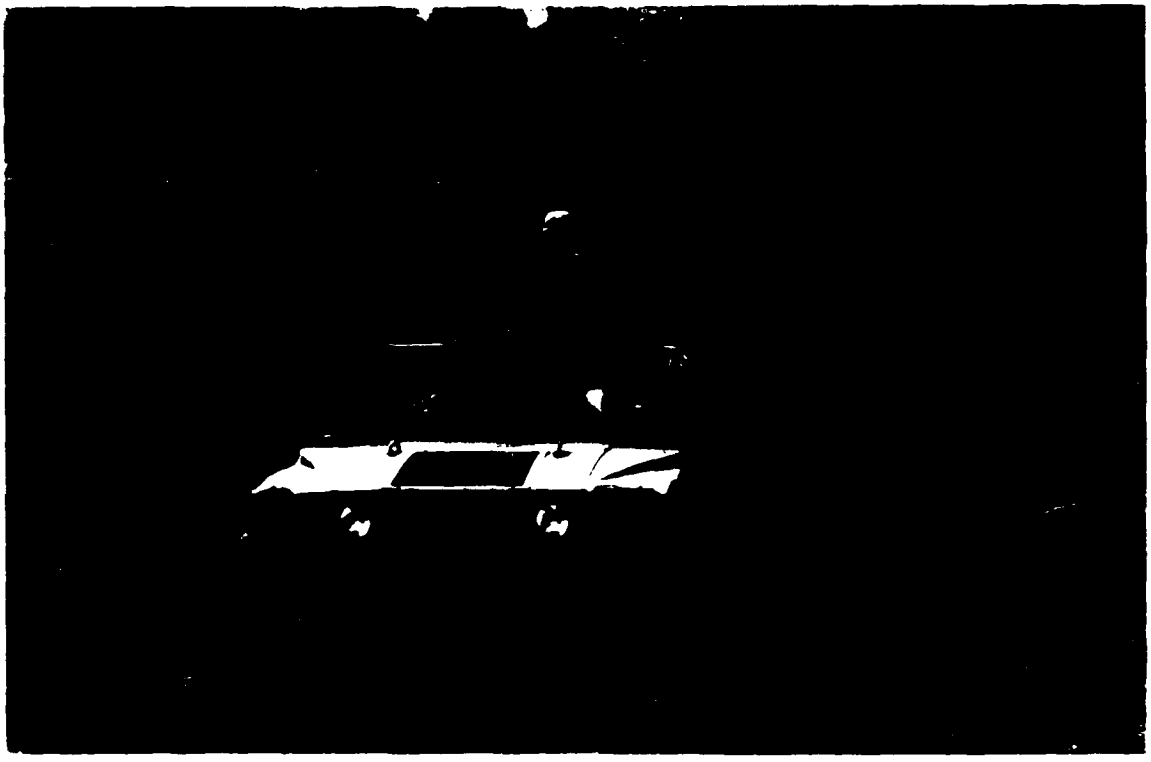

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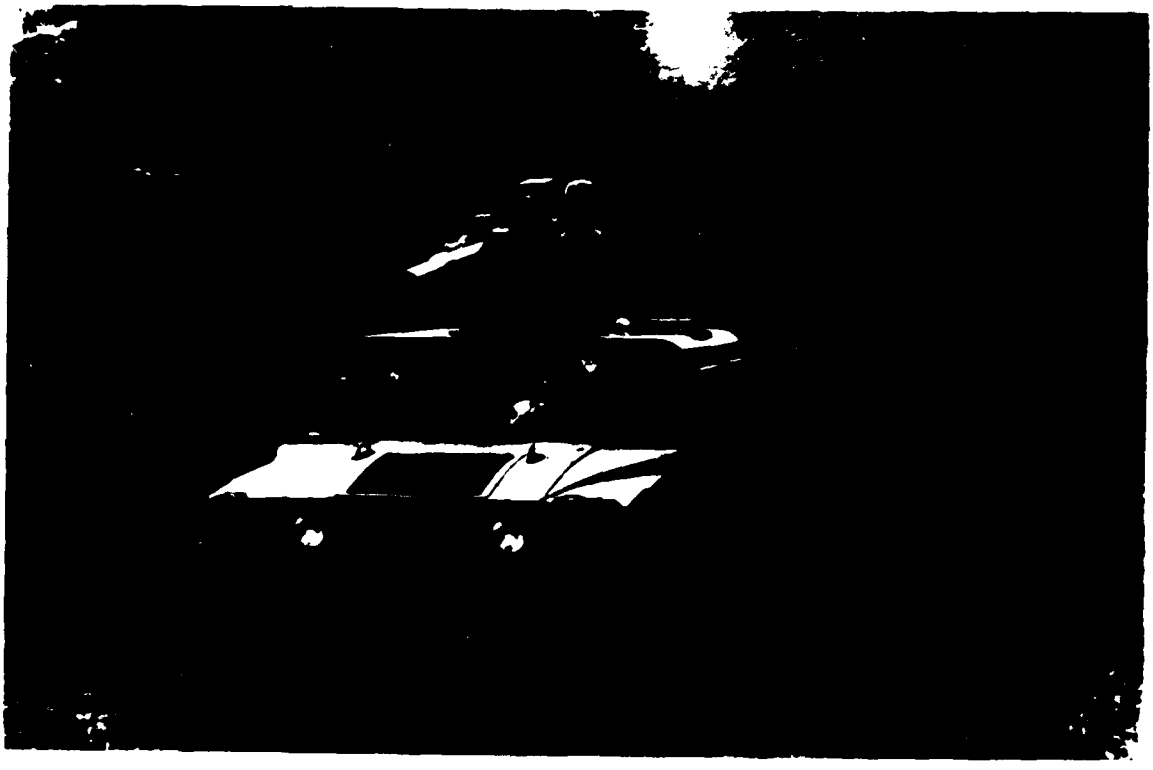

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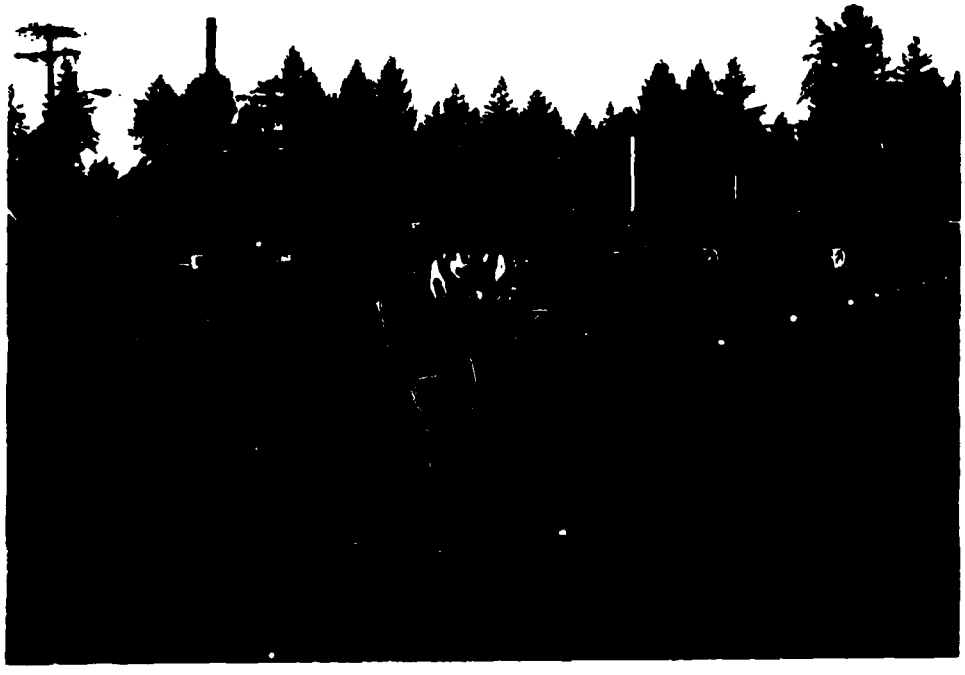

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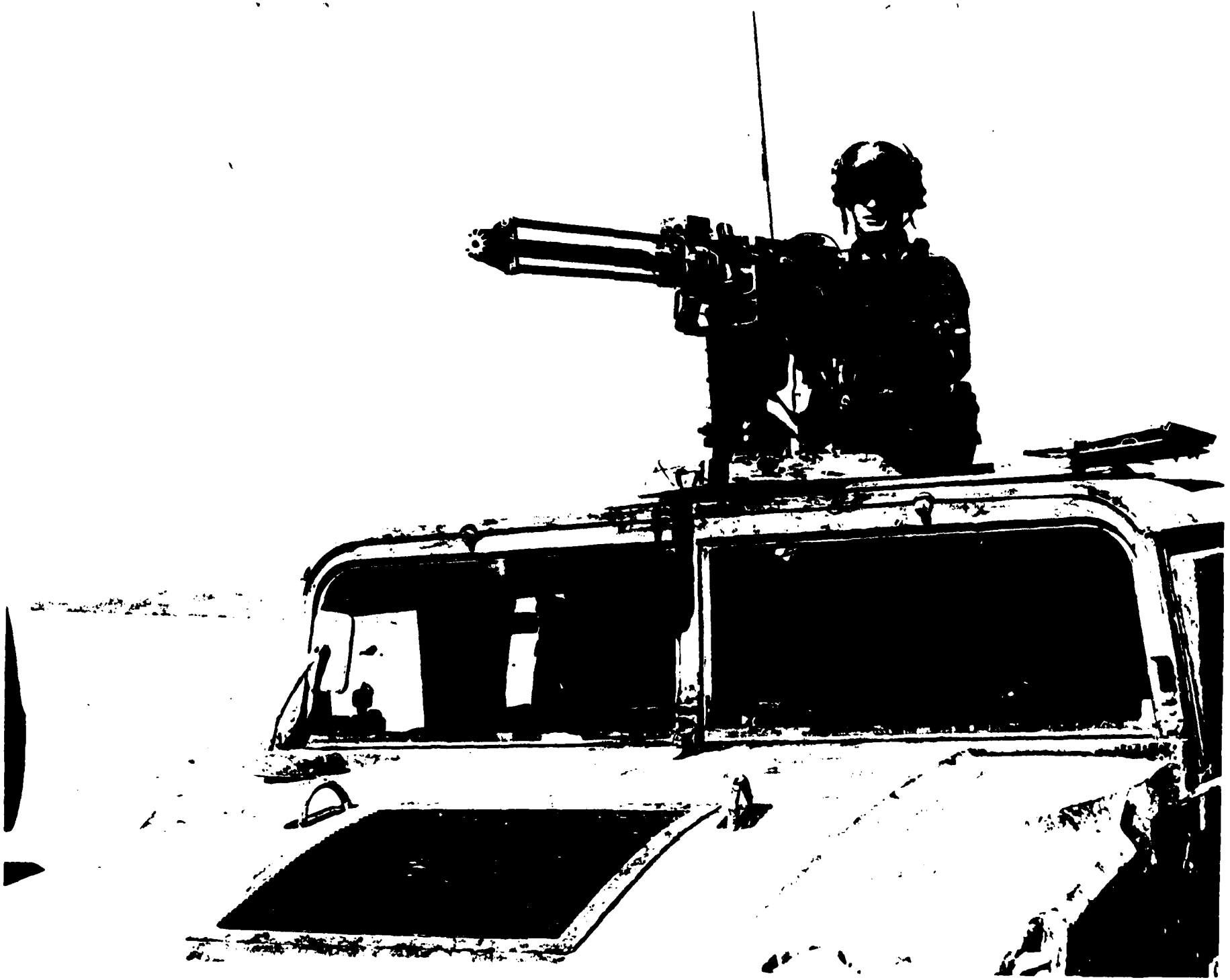

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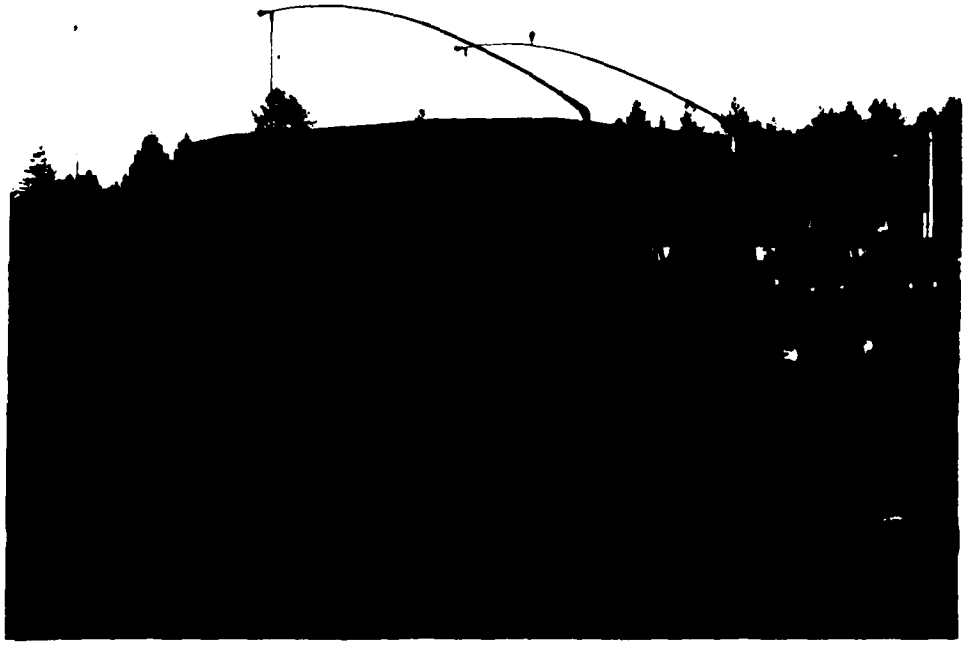

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